

The diagram illustrates a stirred tank reactor. It features a central vertical shaft with four circular stirrer blades. The reactor is equipped with a water jacket for temperature control. Key components and labels include:

- FEED:** The inlet at the top of the reactor.
- sight glass:** A vertical tube on the side for monitoring liquid level.
- water jacket:** The outer cooling/heating jacket.
- air and steam:** Inlets at the bottom right for heating or cooling.
- Valves:** Labeled 11, 12, 13, 14, and 15, controlling flow at various points.
- Pump:** Located on the left, connected to the water jacket.

Figure 1. Bio-reactor for ethanol production using BPSC-15 yeast.

[illegible]



Figure 2. Process flow schematic for molasses to ethanol with 20% vinasse recycle

Figure 3. Osmolality of beet molasses as a function of molasses solids- model versus data.

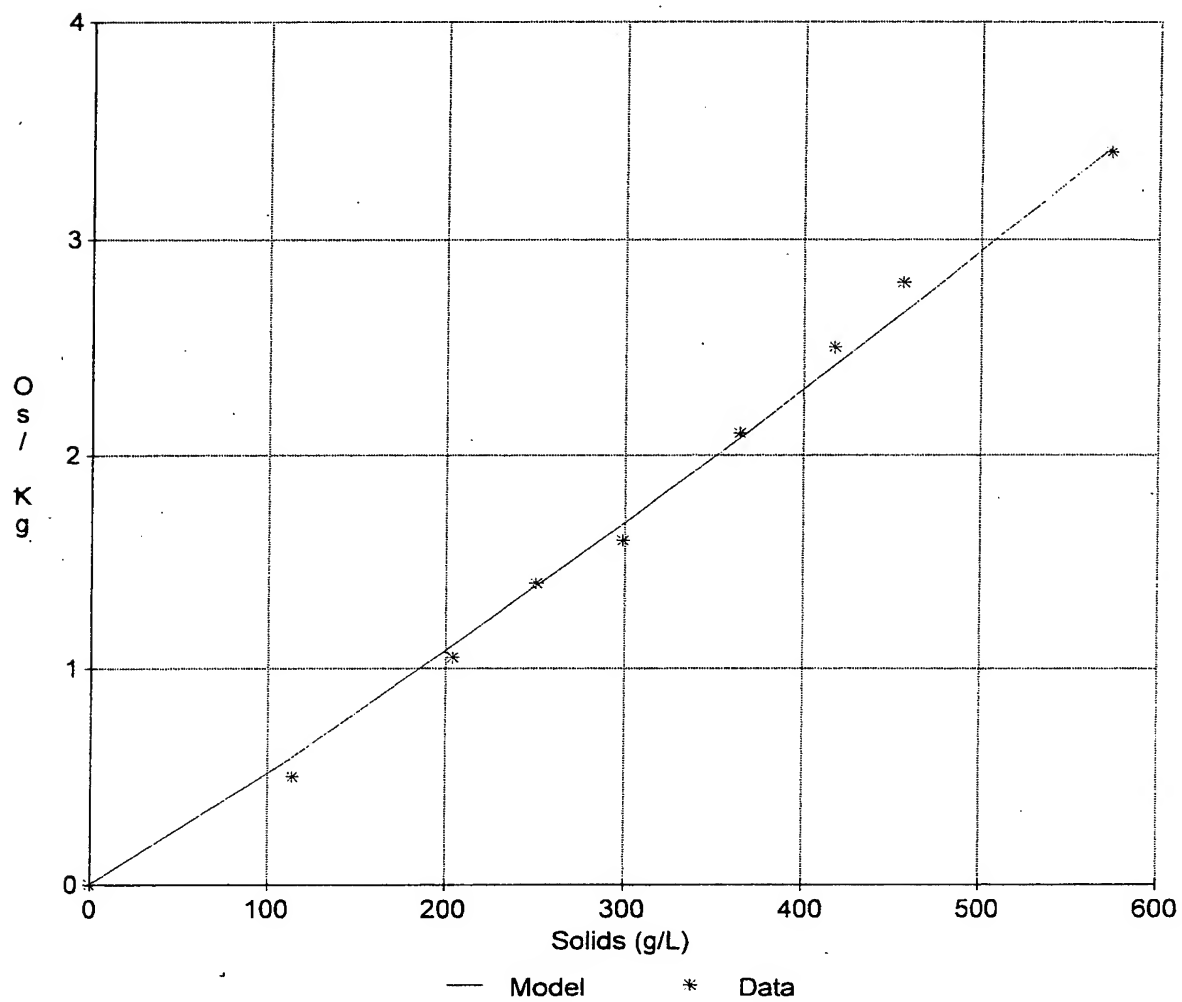


Figure 4. Consecutive Batch Mode (CBM) fermentation of beet molasses- data from 3 consecutive fermentations.

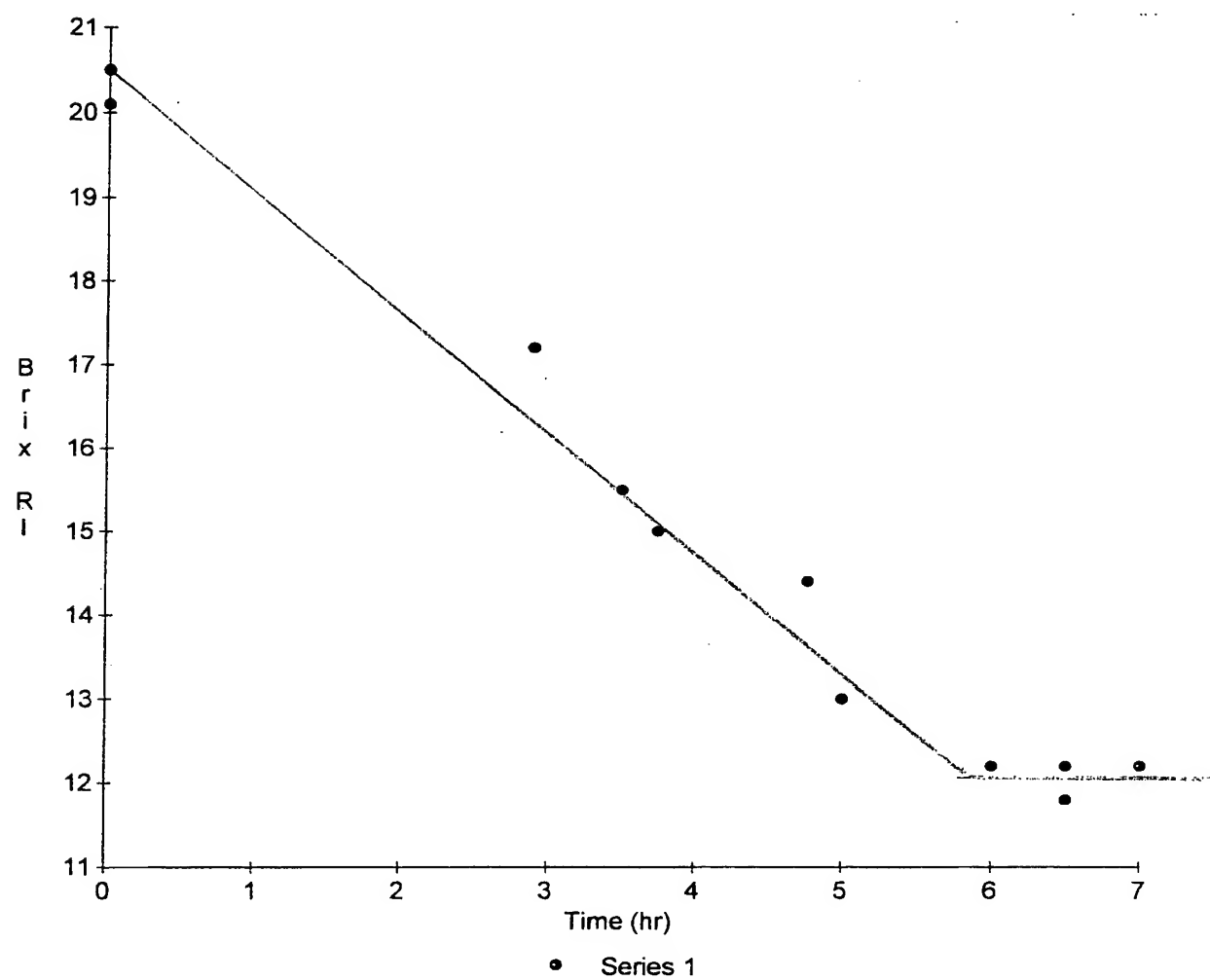
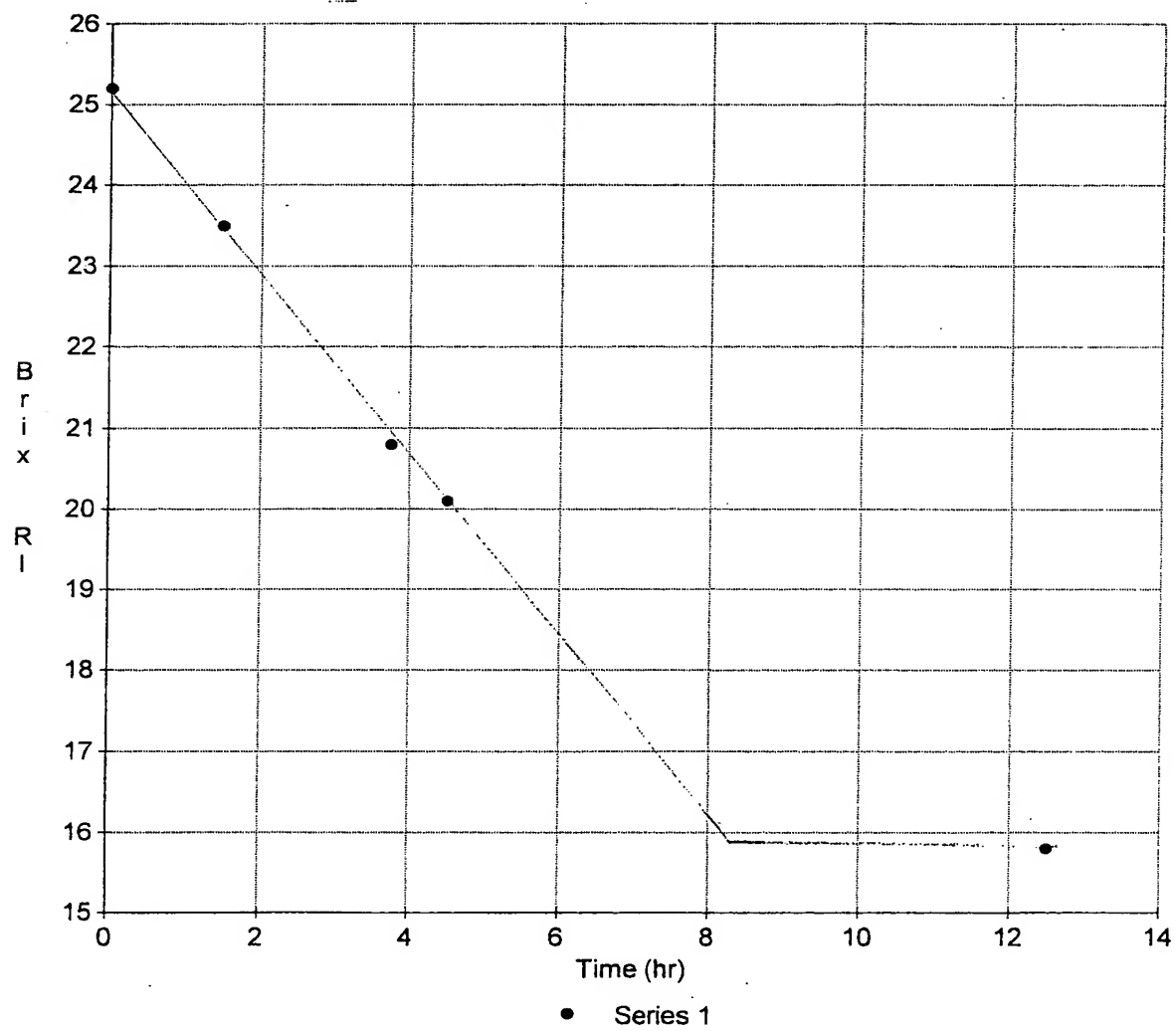


Figure 5. Consecutive Batch Mode (CBM) fermentation of beet molasses with 30% vinasse recycle.



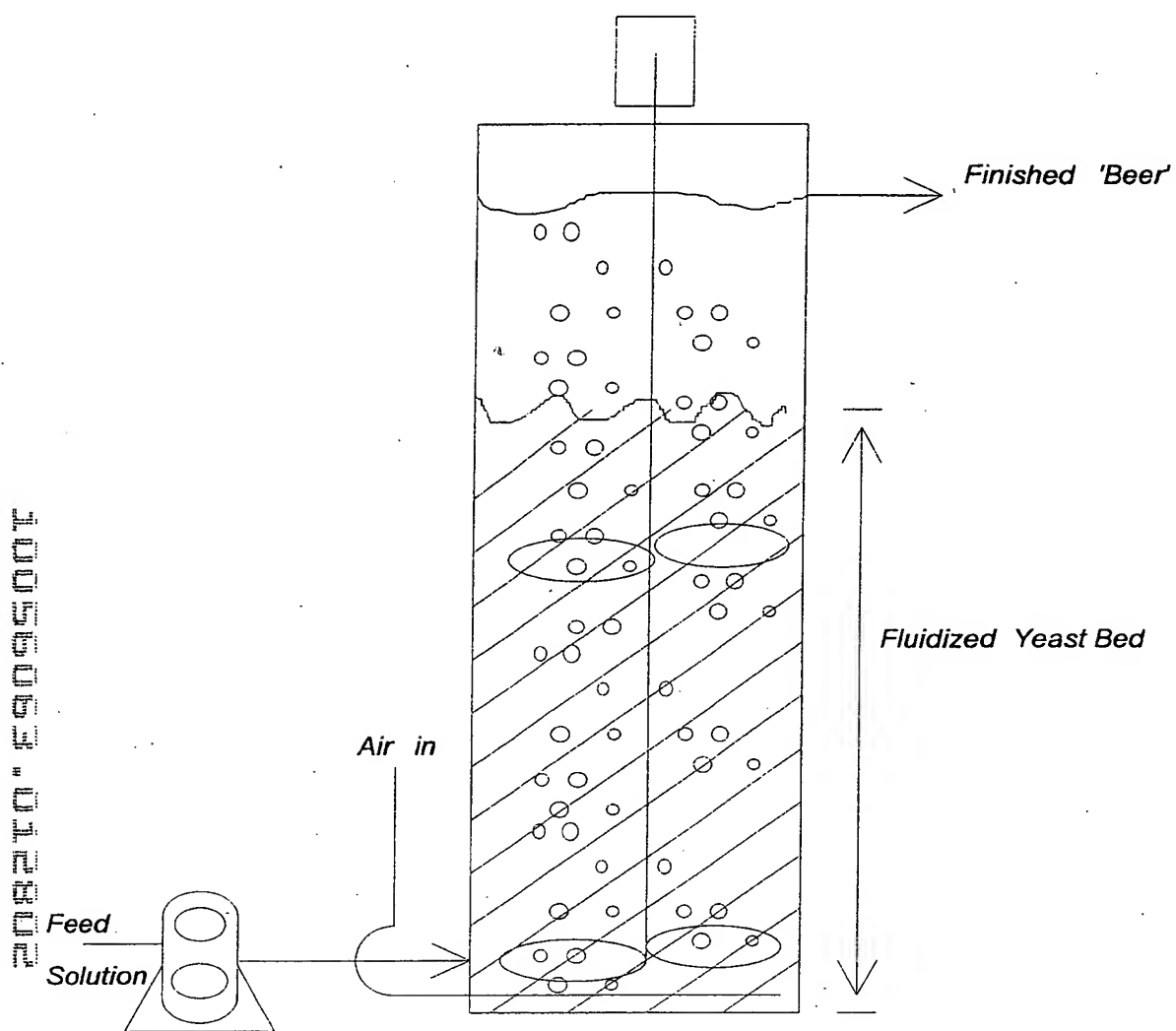


Figure 6. Schematic of Tower Reactor with a fluidized yeast bed.